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312 always found. I noticed on a few rocks near ancient settlements small rectangular depressions artificially carved. The natives explained them as tanks to collect rain water.

133 271 312 The water of the crater lakes (*rano*) has always been an inexhaustible reservoir but it is apparently too inaccessible to have been much used. Some early travelers report that the natives chewed sweet potatoes and sugar cane to quench their thirst when walking.

312 Today abundant water from the corrugated iron roofs is collected in tanks or barrels.

PLANT LIFE

137 Skottsberg (208, vol. 2, p. 489) writes that "there does not exist another island of the size of Easter and with such a fine climate where the native flora is so poor. Only about 30 species are considered to be indigenous." Despite the introduction of many new plants and trees, grass is still the only vegetation on most of the island. Only the crater of Rano-kao with its green belt and the farm of Mataveri are exceptions. The general appearance of the island has not changed much since its discovery; then shrubs, principally of *toro-miro*, sandalwood, *Triumfetta semitriloba*, and *Sapindus*, were seen in many places along the coast and were, perhaps, even more abundant in the interior. It is possible that when the first settlers landed on the island they found a kind of savanna forest "a park-like formation with scattered, stunted *Sophora* trees and grass cover" (208, vol. 2, p. 492). The flat, rocky plains were probably devoid of trees and the savanna confined to the hillsides.

The almost entire absence of trees impressed the ancient travelers more than any other feature. Aridity is still invoked as one of the most decisive arguments in support of the theory of some vast cataclysm which completely changed conditions on the island and reduced its inhabitants to utmost misery after a time of plenty during which their culture developed. Early voyagers, landing at various parts of the island and making hasty generalizations, differ 134 greatly in descriptions of the fertility of the land. Roggeveen holds in high esteem its ability to be cultivated (186, pp. 9-10, 21):

> The reason why, at first, when at a farther distance off, we regarded the said Easter Island as being of sandy nature is that we mistook the parched up grass, and hay or other scorched and charred brushwood for a soil of that aride nature, because from its outward appearance it suggested no other idea than that of an extraordinarily sparse and meagre vegetation; and the discoverers had consequently bestowed upon it the term sandy.
>
> . . . Nor can the aforementioned land be termed sandy, because we found it not only not sandy but on the contrary exceedingly fruitful, producing bananas, potatoes, sugarcane of remarkable thickness, and many other kinds of the fruits of the earth, although destitute of large trees and domestic animals, except poultry. This place, as far as its rich soil and good climate are concerned, is such that it might be made into an earthly Paradise, if it were properly worked and cultivated; which is now only done in so far as the Inhabitants are obliged to for the maintenance of life.

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Wood Resources

To Hotu-matua, who first settled the island, tradition attributes the introduction of all the species of flora of economic use. Among them is the following list of trees, enumerated in the native version of the legend given to me by Tepano: ***mahute, hauhau, toro-miro, naunau, marikuru.*** With the exception of the paper mulberry it is possible that some of them "belonged to the original flora and that the natives who were acquainted with their useful qualities started to propagate them" (208, vol. 2, p. 77). From this list it is clear that the Easter Islanders did not lack wood necessary for the development of their culture, though many writers assume as much in order to increase the mystery of the island. Therefore I consider it extremely important to give the opinion of a prominent botanist, Dr. Carl Skottsberg (208, vol. 2, p. 402):

> . . . And I have been led to believe that some kind of forest once existed in Easter Island, formed by Sophora; and other species, exterminated long ago, may also have occurred. No native tradition tells us anything about these forests, but we can safely conclude that the *toromiro* must have been plentiful. The natives used much wood, not only for the construction of canoes, paddle oars, frame work for their houses and some other necessary things, but they also manufactured small wooden statues and many other ornaments famous for their artistic value, and these must have existed by thousands. The *toromiro* is a small tree, and with a population once amounting to several thousands the supply became exhausted. Cultivated fields and enclosures spread all over the place, crowding out the indigenous vegetation. Paper mulberry, *Cordyline*, *Sapindus*, bananas, cane, taro, sweet potato, etc. were introduced by the natives, and some weeds accompanied them. Many more have been introduced later, when communications with Tahiti and Chile were established; some have become naturalized and form an important feature in the present-day grassland.

Among the trees introduced in the last 60 years, the most common are the *miro-tahiti*, the Eucalyptus, the fig, and the orange. In the gardens of the English residence at Mataveri grow a great many imported plants and new ones are continually being acclimated. The islanders use much wood for the curios that they exchange for clothes and other supplies. Therefore they do not hesitate to destroy a tree to transform it into a score of wooden images. Indeed their destructiveness has become such a nuisance that, outside the residence of the managers, the English company has planted Eucalyptus, the wood of which cannot be carved.

The natives of old used not only the trees growing on the land for the wood they needed but also driftwood which was greatly appreciated. There is a tale of a marvelous tree which landed on the island, sent by the spirit of a man to his son. The arrival of the tree caused great excitement nearly resulting in a fight between groups of islanders, all eager to make precious ornaments from it. (See p. 376.)

Analyses of the wood in some of the scripture tablets and wooden images reveal the use of much *Podocarpus latifolia* and of *Dammara australis*, trees

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137 313 endemic to New Zealand and Australia. If the tablets are really old, the wood of which they are made must have drifted to the island. Cook (53, vol. 1, p. 293) observed in a canoe "a board six or eight feet long, fourteen inches broad at one end, and eight at the other." He supposes that this large piece of wood had been left there by the Spaniards under Gonzalez or had drifted from some distant island. The driftwood I saw at Anakena and on the south coast was generally in the form of planks from ships.

435 However, wood on Easter Island in ancient times was not abundant; the natives valued it highly, and made their most precious ornaments of wood. Even today the islanders do not despise the least plank. The eagerness to get wood from passing ships is well illustrated by the account of Du Petit-Thouars (65, vol. 2, p. 227):

> All the natives repeated frequently and with vivacity the word *miro* and they showed impatience that we did not understand it: this word is used for the wood with which the Polynesians build their canoes. Wood was the thing they longed for most eagerly and they resorted to various means in order to make themselves understood; they refused to eat or to drink, they seemed to make light of the knives and of the scissors.

192 824 The parts of a tree are *tumu* (trunk or stump), *tahito* (base of the trunk), *manga* (branches), *hua* (buds and flowers), *karu* (seeds), *rau* (leaves).

TORO-MIRO

137 The first travelers to Easter Island were impressed by the total lack of wood large enough to be used in transportation of the huge statues. The members of the expedition led by Gonzalez (90, p. 101) marvel that "not a single tree is to be found capable of furnishing a plank so much as six inches in width." They notice that "there are plenty of shrubs, or brushwood of a sort little more than an estada in height, which offer little obstruction to one passing as they are not dense and have no prickles. Its trees are very similar to mimosas and tamarinds." This tree is the *toro-miro* (*Sophora toromiro*) of which Cook (53, vol. 1, p. 285) gives a nearly identical description: "The wood is of reddish color, and pretty hard and heavy, but very crooked, small and short, not exceeding six or seven feet in height." G. Forster (82, vol. 1, p. 591) saw a hill near Hanga-roa "That was covered with a shrubbery of the mimosa, which grew here to the height of eight or nine feet, and some of whose stems near the root were about the thickness of a man's thigh." Cook (53, vol. 1, p. 285) in 1776 and De Langle (130, vol. 1, p. 82) in 1786 saw only a few small shrubs of *toro-miro* along the south coast.

From the preceding descriptions it is obvious that *toro-miro* were not numerous on the east and southeast coasts. Gonzalez (90, p. 90) reports that on the north coast the soil seemed "to be covered for the most part with green shrub."

Roussel (190, p. 427), one of the earliest missionaries, mentions thickets of *toro-miro* and *hau* on the outer slope of Rano-kao. Palmer (169, p. 375), who visited the island in 1868, says, "At present there are no trees on the island [all that there were having been destroyed in wars]; there are a few shrubs, as the paper mulberry (*miromiro*) and a kind of pourow-tree (the hibiscus)." Palmer (168, p. 276) says: "As for trees, I cannot call the shrubs and bushes I saw by that name. There are none now, though, from the boles and roots found in some places, they must have existed." Three years later, Gana (86, p. 23) saw clumps of *toro-miro*, some of which were 20 inches in diameter. "There is not a single trunk left, but branches are still used in the construction of huts and for the shafts of war spears." In another record (86, p.) Gana speaks of "innumerable dry trunks, from

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six to ten feet high" and attributes the disappearance of the tree to the ravages of cattle and sheep. In 1885 Thomson (215, p. 456) and Cooke (54, p. 705) saw "small clumps of Edwardsia, Broussonetia and hibiscus, but all were dead, having been stripped of their bark by the flocks of sheep, which roam at will over the island. None of these trees were over 10 feet high." The biggest trunk they saw measured 5 inches in diameter. Today the only *toro-miro* on the island is growing in the bottom of Rano-kao, protected by rocks from voracious sheep. Its trunk is about 4 inches thick. It has been fully described by Skottsberg (208, vol. 2, pp. 73-74, 77) who considers it an endemic species.

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HAU

Hau trees (*Triumfetta semitriloba*) were seen by early visitors to the island. The fibers of *hau* bark were twisted into string and rope, and its wood was used for producing fire. Now only a few *hau* grow in the interior of Rano-kao.

MAKOI

The *makoi* (*Thespesia populnea*) is a rare tree on Easter Island. Neither Fuentes nor Skottsberg saw a single specimen. However the tree did grow there in the eighteenth century. G. Forster (84, vol. 1, p. 569) speaks of "some bushes of the Hibiscus populneus which is common also in the Society Islands, where it is one of the numerous plants made use to dye yellow." G. Forster (83) reports *Hibiscus bacciferus* which is considered identical with *Thespesia populnea*. The wood of one of the tablets in the Museum für Völkerkunde at Vienna (22869) has been analyzed as *Thespesia populnea* by Conrad and Guillaumin of the Muséum National d'histoire naturelle of Paris (131, p. 68).

This tree is frequently alluded to in legend and songs. It is considered one of the trees introduced by Hotu-matua and there is a song (p. 353) about "spinning tops" made of *makoi* fruits. Different objects were pointed out to me as being made of *makoi*. The only *makoi* trees that I saw were growing on the side of the high cliffs of Poike where they cannot be reached, though I was able to collect many dry fruits at the base of the cliffs. These were subsequently identified in Paris as the fruit of *Thespesia populnea*. In Tahiti and Mangaia, children make their tops of the fruit of the *Thespesia*.

[773]

MARIKURU

The exploring party sent by Captain Cook (53, vol. 1, p. 285) found at the southwest corner of the island "a small shrub whose wood was white and brittle, and in some measure, as also its leaves, resembling the ash." G. Forster (83, p. 178) identifies it as the *Sapindus saponaria*. The native name, *marikuru*, has been recorded by Cooke (54, p. 722) who describes it as a variety of the ash tree. According to Fuentes there were some trees of *Sapindus* near Tahai on the west coast and in Hotu-iti in 1911. The Bishop Museum herbarium has specimens of leaves and branches of *marikuru* collected recently in the interior of Rano-kao and classified as *Sapindus saponaria*.

A white color substance was extracted from the rotten stumps or branches of the *marikuru*. Fuentes (85, p. 323) says that the fruits of the *Sapindus* were used for necklaces.

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SANDALWOOD

Sandalwood, *naunau* (*Santalum*), is first referred to from Easter Island by G. Forster (84, vol. 1, p. 583) in discussing the wooden hand now in the British Museum: "The wood of which it was made was the rare perfumed wood of Taheitee, with the chips of which they communicate fragrance to their oils." Cooke (54, p. 722) translates the word *naunau* as "bastard sandalwood." The *naunau* figures among the trees that Hotu-matua introduced on the island. My informant gave "sandal" as the Spanish equivalent for the word *naunau* and remarked that the tree had entirely disappeared since the time of Salmon (between

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137 1880 and 1890). The last one on the island grew near Vai-mata but died recently "because there were no more kings." From the distribution of the sandalwood, it seems likely that the *naunau* was the true sandalwood and not the bastard. Sandalwood is found on the atolls of Elizabeth and Ducie, the nearest islands to Easter Island.

UNIDENTIFIED TREES

De la Maza (208, vol. 1, p. 7) mentions an unknown tree about which he writes: "The *tumahiti* wood is rather hard and more or less pliable. The Kanakas use it to make yokes and ploughs. It is the only tree which grows freely in the island. Its fruit is oval in shape, yellowish, about half an inch in length and it tastes rather bitter."

It is likely that De la Maza has misspelled the name of the *miro-tahiti* (*Melia azedarach*), the wood generally used by the natives for wooden images and implements.

ANIMAL LIFE

136 973 Before man settled on Easter Island, animal life in its highest form was represented by flocks of sea birds, which nested on the three islets off the southwestern promontory—Motu-kaukau (Needle Rock), Motu-iti, and Motu-mui. Some birds have made their abode in the interior of Rano-kao, but a few of them are seen flying along the shores of the island itself. The native legends explain this concentration of the birds at a single point as a protective measure adopted by the god Makemake to prevent the extermination of birds by egg hunters.

136 The importance of sea birds in native mythology and art makes necessary a brief enumeration of the species identified by our Expedition. On Motu-nui, we collected petrels (*taiho, Pterodroma heraldica paschae*), gray terns (*tuvituvi, Procelsterna caerulea skottsbergi*), white terns (*kia-kia, Leucanous albus royanus*), noddy terns (*tuao, Anous stolidus unicolor*), gray-backed terns (*manutara, Sterna lunata*), boobies (*kena, Sula dactylatra* subsp. ?), tropic birds (*tavake, Phaeton* sp.), and *makohe* (*Fregata minor* subsp. ?). A specimen of *Oestrelata incerta* or *leucoptera* was designated under the name of *kumara* and a *Sula Cyanops* as *ruru*. A list of Easter Island birds published by Knoche (123, pp. 141-144) contains the word *nguingui* for the *Gygis alba* (syn. *Leucanous albus royanus*) and *rengurengu* for the *Anous caeruleus* (syn. *Anous stolidus unicolor*).

[177] [222] Partridges (*vivi*) were introduced by the Chileans many years ago and have propagated rapidly. Their eggs are looked for by the natives as eagerly as those of the sea birds. An unsuccessful attempt was also made to acclimatize a Chilean scavenger, the *loica* (*Leistes superciliaris*).

The harmless little lizards (*moko*) may have been stowaways on the Polynesian canoes. They have haunted the imagination of Easter Islanders, who have carved ceremonial objects in their shape.

There are few insects on the island, and their number has certainly increased since European contacts. A sort of cricket is said to have come to the island with the fleet of Von Spee. Flies and cockroaches have become pests.

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WILD PLANTS OF ECONOMIC VALUE

Moki-oone

137 824 In Thomson's version (215, p. 527) of the Hotu-matua legend it is said that after they landed, the king and his followers lived on nuts of a creeping plant (*moki-oone*) found growing along the ground, while waiting for their introduced plants to grow. I was unable to get information about the *moki-oone* which may have either disappeared or become known under another name.

Bulrushes

Bulrushes, *ngaatu* (*Scirpus riparius* var. *paschalis*) are abundant in crater lakes (*rano*). They grow particularly high and large in Rano-kao. Formerly *ngaatu* were of great economic value to the natives who used them for covering their huts and for making sleeping mats, baskets, and fishing floats. They compensated to some extent for the lack of wood on the island.

Nightshade

Nightshade (*Solanum forsteri*) is called *poporo* by the islanders. On some native plantations Forster (82, p. 578) noticed "a species of nightshade [*Solanum nigrum*?], which is made use of at Taheitee and the neighbouring islands as a vulnerary remedy and may, for ought I know, be cultivated here for the same purpose." La Pérouse (130, vol. 1, p. 76) mentions as a food "a small fruit which grows on the rocks at seaside, resembling the bunches of raisins found in the neighbourhood of the tropics in the Atlantic Ocean." He probably alludes to the *poporo*, which he correctly classifies as a *Solanum*. La Pérouse and his naturalist, De Langle, believed nightshade was a cultivated [261] plant, but present islanders deny it; they told me that its berries were eaten by children and adults only in time of famine. The *poporo* grows wild near the settlements, especially in cultivated fields.

Plants Eaten in Time of Famine

261 137 824 298 Several other plants were used as food only in time of famine. The *huataru* (*Chenopodium ambiguum*), of which the vegetative parts were occasionally eaten, is a very common Easter Island plant. Like the old Hawaiians, Easter Islanders were sometimes forced to eat the stems and roots of the beach morning-glory, *tanoa* (*Ipomoea pes-caprae*). The *here-po* mentioned by Cooke (54, p. 777) as edible and described as "ice-plant" was undoubtedly *Tetragonia expansa*. *Kavakava-atua*, a fern, is mentioned among the plants which grew as products of a king's power. The natives used it as a medicine and only occasionally as food. The roots of another fern, *riku*, and those of the *hikikioe* (*Cyperus vegetus*) were eaten when no other food was available. Berries called *pua-nakonako* were also considered edible.

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Ngaoho

Ngaoho (*Caesalpinia bonduc*) is almost extinct. According to Knoche (123, p. 123) it was used as a medicine. Its fibers were resorted to for tying together pieces of wood in canoes or fastening poles of hut frames. Fuentes (208, vol. 2, p. 72) says that the natives listed *ngaoho* as a plant introduced by their ancestors, but both Skottsberg and my informants consider it to be indigenous.

Moss

Para (*Campylopus turficola*) is a green moss which covers the lakes of the craters. It is mentioned by Routledge as a *Sphagnum*. Skottsberg (208, vol. 2, p. 501) says explicitly that he has not found *Sphagnum* in the lake, but in its place a species of *Campylopus* which forms a peat. The peat was gathered, washed and dried to be used in the preservation of water. The moss was also used to stop the chinks of canoes.

Seaweed

Rollin, one of the officers under La Pérouse (130, vol. 2, p. 240), noticed that some of the Easter Islanders were eating "a species of marine *fucus*, which they gather on the shore." The names of the edible seaweed are *miritonu, miritonu mama, auke,* and *ringaringa-pea*. Nowadays only children enjoy eating seaweed.

Fire

Although the use of matches became general on the island after 1880, the ancient method of making fire by rubbing is still remembered. From what I could learn, *hau* wood (*Triumfetta semitriloba*) was the best for making fire, but a harder wood might have been used (215, p. 471). A rubbing stick preserved in the Anthropological Museum, Berkeley (1142), is made of a light material, probably *hau*. It is 185 mm. long and the tapering end is slightly curved upward. The operator, sitting on the floor, held the stick with both hands and, pressing hard, rubbed it along a longitudinal groove in another piece of *hau* or paper mulberry. The hearth was probably held in place with the foot or by an assistant. Friction ignited some fibers placed at the end of the groove as tinder. The whole operation took between five and ten minutes. *Hau* wood is soft and its particles smolder and glow easily. Therefore, it is very unlikely that the natives kept permanent fires, attended by special watchers, in order to spare themselves the trouble of producing fire by the usual method (56).

During our trip round the island the natives who accompanied us always found sufficient fuel for their fires. They gathered small twigs and dry branches or cut branches of the *miro-tahiti* which grows on several points of

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natives for ornaments and especially for headdresses consisting of the most extraordinary things:

> Sometimes it was a hat decorated with buttons, a calabash, a half squash, or a sea bird whose carcass had been opened more or less carefully. One day I saw one of those fellows who had the funny idea of putting one bucket into another and covering his head with them. Another had found shoes left by the Peruvians. He had split them, joined them together and "shod" his head.

The immoderate fondness of the natives for headgear is well illustrated by the narratives of the first navigators who all complain about the loss of hats, which the natives coveted more than anything else. After a few hours ashore La Pérouse and his crew were hatless.

Today the Easter Islanders are still fond of headgear. Those who do not own European hats or caps of the Chilean navy, wear straw hats plaited by the women in a technique which was introduced from Tahiti about 1875. These straw hats, of European origin but adapted by the Tahitians, are made on Easter Island from narrow bands of plaited straw wound spirally and sewn together with needle and thread. They are often decorated with artificial flowers or chicken feathers. The style is the same for men and for women.

Formerly, men wore feather headdresses and women wore rush hats of a type entirely different from the modern ones. Some natives have been seen with wreaths of leaves or of dried seaweed on their heads. Even now one frequently sees a young girl with a wreath of leaves on her head worn more in fun than to adorn herself. Fifty years ago such decorations seem to have been more common. Geiseler (87, p. 35) mentions in his notes that "the young girls, besides other ornaments, wear daily green wreaths of leaves on their heads and flowers behind the ears, as in the Society Islands." A middle-aged native told me that women used to wear wreaths of sweet-smelling flowers from the *ngaoho* (*Caesalpinia bonduc*). I have seen young women plait the flowers of the *miro-tahiti* (*Melia azedarach*) and walk around proudly with heavy wreaths on their heads. The *miro-tahiti* is the only tree on the island which bears flowers that can be plucked for that purpose, and it has been introduced recently.

FEATHER HEADDRESSES

The feather headdresses of Easter Island preserved in European and American museums are of four types—circlets, diadems, crescents, and conical caps.

Circlets

Most of the early navigators who mention or describe feather headdresses refer to them as circlets, crowns, or diadems (186, p. 22; 90, p. 97; 53, vol. 1, p. 291; 15, p. 47). G. Forster (83, vol. 1, pp. 565-566) noticed that they were not all alike and he distinguished two kinds:

6: Anonymous T-5 (1770)1908
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The island extends to about 50 miles in circumference; [131] but no harbour capable of affording shelter to a single 133 vessel of moderate burthen was met with. The whole of the shore-line is beset with reefs, cliffs, and rough ground, without containing any spot fit to beach a boat at. On penetrating inland in a few places they met with many natives, with whom they held intercourse, and they observed in them the same manners, customs, and ceremonies as in those of this bay; experiencing among them the same disposition to theft. They saw no kind of wild nor 231 domestic animal, excepting hens and some rats. The 241 fields are uncultivated save some small plots of ground, in which they sow beds of *yuca*, yams, sweet potatoes, and several plantations of plantains and sugar-cane: but all very tasteless, as if from want of cultivation. They did 135 not find any metal, nor any ornaments of that kind in the natives' habitations. All this account tallies with the 137 observations we have gathered in this bay, on whose slopes, and on those throughout the island, not a single tree is to be found capable of furnishing a plank so much as six inches in width; but there are plenty of shrubs or brush-wood of a sort little more than an *estada*[1] in height, which offer little obstruction to one in passing as they are not dense and have no prickles. Its trees are very similar to mimosas and tamarinds. Of fruit-bearing trees I have seen only some very small figs, but so different from ours that they are recognisable as such only by the scent of the leaf, and the white juice which exudes from them. It is certain that they bear fruit, because the natives were eating some dry figs on board, which we gave them from those of Mendoza, and they called them *gecoy*. The island is 136 destitute of every kind of bird: not a single bird has been

[1] An *estadal* or *estada* is equivalent to four *varas* of about 33 inches each, *i.e.* 11 feet.

7: Anonymous T-5 (1770)1908
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It need not be said that the islanders were terrified at the noise of the gunfire and musketry: that must happen to people who have not used or seen such inventions.

The women made use of wraps or cloaks: one which covers them from the waist downwards, and another about the breasts. There are others also who wear only a rag or strip of some root, which they place in front like the men. They have several very low and small huts, and some like the one first mentioned.

Throughout the island, but especially near the sea-beach, there are certain huge blocks of stone in the form of the human figure. They are some twelve yards in height, and I think they are their idols. They could not bear to see us smoke cigars: they begged our sailors to extinguish them and they did so. I asked one of them the reason, and he made signs that the smoke went upwards; but I do not know what this meant or what he wished to say.

I fancy that the cloaks or wraps of the said islanders are made from the fibres of stems of the banana plant, which, when dry, they put together as may suit their purpose[1]: it is not woven, but is joined together by strands of the same material which they thread on bone needles of the size of a cloak-maker's needle. They make fishing-lines of this same fibre, as well as nets after the fashion of our small nets; but of little strength.

They have very little wood; but if they were to plant trees there would be no lack of it; and I believe that even

[1] The material was really the white inner bark of the paper mulberry tree (*Broussonettia papyrifera*); and the thread used for attaching the segments together was probably made from the *Hibiscus tiliaceus* bark. A Spanish naval officer may well be excused for falling into this error, as the employment of the fibre of *Musa textilis*, known to him as *abacá* and to ourselves as 'Manila hemp,' would doubtless have come under his observation in the Philippine Islands; and perhaps his running rigging may have been made of it even in those days.

7: Anonymous T-5 (1770)1908
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the cotton plant would yield, as the country is very temperate: and wheat, garden plants, pot-herbs, &c. They dye their cloaks yellow.

The number of the inhabitants, including both sexes, will be from about nine hundred to a thousand souls: and of these very few indeed are women,—I do not believe they amount to seventy—and but few boys. They are in hue like a quadroon, with smooth hair and short beards, and they in no way resemble the Indians of the South American continent; and if they wore clothing like ourselves they might very well pass for Europeans. They eat very little, and have few needs: they do altogether without liquor of any kind.

On the 21st at noon we put to sea from this Island of David: we sailed some 70 leagues to the Westward to see whether any more land lay in that direction.

On the 23rd we hauled to the Southward until we reached the lat. 38° 30′ and long. 263° 31′, where we arrived on the 29th. On this track, on the 24th, in lat. 29° 30′, long. 261° 30′ at 6 in the afternoon, we saw ten or twelve white birds, and terns, and again some godwits, an indication of some island. The Commodore decided not to search for it at this juncture, deeming that the time was already short for going to Chiloe, and intending to look for it on the return voyage as the latitude was one in which the quest might be pursued at any season of the year.

From the longitude of 263° 31′ we stood away East as far as 281° along the parallel of 38½°, without meeting with any sign; and from that position we proceeded to Chiloe.

[Here this Journal ends; but a note is appended to it in one of the two MS. copies at the Academy of History, to the following effect:—

"This is a copy of the one which the aged Captain and Pilot of these seas, Don Domingo Josef Vasqués, had in

9: Forster T-5 (1774) 1777
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Dutch account of Roggewein's voyage, printed at Dort in 1728*; and ſufficiently proved that the iſland is very deſtitute of wood, though the contrary is aſcertained in the ſerjeant-major's relation of that voyage †.

1774. MARCH. 175 501

Though we ſtruck ſoundings oppoſite the place from whence this canoe put off, yet in hopes of finding a better place of anchorage, we ran along the coaſt of the iſland, till we came in ſight of its northern extremity, which we had already ſeen the day before from the other ſide. But being diſappointed in our expectation, we put about with a view to return to the place which we had left. A great number of black pillars ſtood along the ſhore, many of which were elevated on platforms conſiſting of ſeveral ranges of ſtone. We could now diſtinguiſh ſomething reſembling a human head and ſhoulders towards their upper end; but the lower part appeared to be a rude ſtone, without being carved into a reſemblance of the human ſhape. Sometimes we perceived two, ſometimes four, and even five together in a row; but ſome were likewiſe placed by themſelves. We ſaw but few plantations towards the north end, the land being much more bluff or ſteep there, than about the middle of the iſland, and we could eaſily perceive that there was not a tree upon the whole iſland, which exceeded the height of ten feet.

175 532

175 137

* See Mr. Dalrymple's Collection, vol. II. pag. 111.

† Ibid. vol. II. p. 93; or Hiſtoire, &c. vol. I. p. 138.

In

9: Forster T-5 (1774) 1777
OY2 Easter Islanders OY2

1774. MARCH. with a muſket in his hand, but very juſtly reflected, that ſo ſlight a crime did not deſerve the puniſhment of a leaden bullet.

In our walk along the ſea-ſhore, we diſcovered a few ſtalks of the ſame ſpecies of celery which is plentiful on the beaches of New Zeeland, and we alſo found two other little plants common to that country. Whether theſe plants originally exiſted on the iſland, or ſprung up from ſeeds, which the current of the ſea, or birds by their plumage might tranſport from the oppoſite ſide of the ocean, I cannot venture to determine. We likewiſe met with a plantation of yams (*dioſcorea alata*, Linn.) which in ſo poor a *flora* as that of Eaſter Iſland was a great addition. The great correſpondence in the features, cuſtoms, and languages of theſe people, to thoſe of other natives of the South Sea iſlands, gave us ſome room to hope for ſuch domeſtic animals among them, as we had obſerved at Taheitee or New Zeeland. But notwithſtanding the moſt diligent ſearch, we never met with any other than common fowls, which were of a very ſmall breed, and had a dull plumage. It is true we obſerved alſo two or three noddies, which were ſo tame as to ſettle on the ſhoulders of the natives, but from theſe individuals we could not conclude, that they kept a regular breed of them.

About ſun-ſet we left the watering-place, and walked to the cove where our boat lay at a grapnel. In our way we paſſed

9: Forster T-5 (1774) 1777
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of Taheitee. The monarchical government likewiſe ſtrengthens the affinity between the Eaſter Iſlanders and the tropical tribes, its prerogatives being only varied according to the different degrees of fertility of the iſlands, and the opulence or luxury of the people. Eaſter Iſland, or, as the natives call it, WAIHU, is ſo very barren, that the whole number of plants growing upon it does not exceed twenty ſpecies, of which far the greater part is cultivated*; though the ſpace which the plantations occupy is inconſiderable, compared with that which lies waſte. The ſoil is altogether ſtoney, and parched by the ſun, and water is ſo ſcarce, that the inhabitants drink it out of wells which have a ſtrong admixture of brine; nay, ſome of our people really ſaw them drink of the ſea-water when they were thirſty. Their habit of body muſt, in ſome meaſure, be influenced by theſe circumſtances; they are meagre, and their muſcles hard and rigid; they live very frugally, and, in general, go almoſt wholly naked, only covering the head, which is the moſt ſenſible of heat, with feathered caps, and puncturing or daubing the reſt with colours. Their ideas of decency are, of courſe, very different from thoſe of nations who are accuſtomed to clothing. They cut ſhort their hair and beards

* The Spaniards mention white calabaſhes, (*pompions,*) among the vegetable productions of this iſland; but we did not ſee any.—See Mr. Dalrymple's judicious letter to Dr. Hawkeſworth.

from

10: Cooke D-5 (1886) 1899
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In traveling southward, along the slope of the mountain, on again approaching the region of grass it was singular to observe the line of demarcation. The sand, moved by the winds, was gradually encroaching upon the vegetation, the depth of the edge being about 6 inches. The contrast between the deep red of the one and the vivid green of the other was very striking, and the line was as straight, regular, and clearly drawn, with fertility on one side and barrenness on the other, as any of a similar nature seen by the writer in Egypt. 137●

The walking upon the sand, although tiresome, was easy as compared with that on the hummock grass, over which our route now lay. In our journeyings theretofore, although there was no regular paths and of course no roads, we were fortunate enough occasionally to strike a sheep or cattle trail, which afforded a welcome relief, however brief, to our jaded feet. There was nothing of the sort now—no avoiding of rough places, no choice of spots to plant a foot—and as we moved grimly onward, blundering at every step, the distance around Cape Anantanvanui seemed interminable. Thoroughly fatigued we reached the precipice, which terminated the plateau over which we had been struggling, and looking to the westward saw the welcome flags, still a mile distant, waving over our camp. The descent of the precipice at the point reached being precarious, its edge was skirted until a more favorable place was found down which to scramble to the plain below. Here we presently struck a trail, which soon opened into a wagon road, whence a footpath led to the camp, which the writer (the party having been scattered since noon) reached at 4.30 in the afternoon. 487

The situation of the camp, which was named "Baird" in honor of the secretary of the Smithsonian Institution, was a delightful one, being located on the south side of the little bay of Hanga Nui, at the base of a bluff which partly sheltered it from the strong southeast trades, as well as the hot afternoon sun. Rana Roraka, from the crater and slopes of which all the monoliths on the island had been quarried, lay immediately to the left. Puna-ko-taki, over whose summit and around whose base we had toiled, loomed in front of us. Lying in the opening of our cave, we could gaze upon the great platform, Tongariki, with its fifteen prostrate stone images, the largest and most imposing on the island. At our feet, surging back and forth among the everlasting rocks as the swell rolled in from the open ocean, lay the sparkling waters of the Hanga Nui Bay. 122

The cave, called "Ana Haven" by the natives, ran back into the bluff a distance of 50 feet or more and laterally about 30. The entrance was spacious, and it was roomy, dry, and well ventilated, the trade wind, deflected by the bluff, sweeping nearly across its face. It was an ancient cavern, had been inhabited by the image builders, and was still occupied at times by the natives, as also by Messrs. Salmon and Brander when in this part of the island, engaged in rounding up their herds of cattle or sheep. The floor was strewn with dry litter, bull rushes and 342

10: Cooke D-5 (1886) 1899
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342 natives built many of these huts, the cairns for the dead, and other buildings, of these lava blocks, loosely piled up, and Messrs. Salmon and Brander apply them to good use in constructing their extensive corrals and fences, with the added advantage of thus clearing the soil for planting, wherever desirable.

137 A course hummock grass and a variety of finer quality grow profusely over nearly the entire island, sprouting vigorously among the lava fragments, and affording abundant pasturage for the herds of cattle, horses, and sheep, the former numbering 600 and the latter 18,000 at the time of our visit, and both multiplying rapidly.

134 On the northeastern end of the island, and on the slopes of Mount Pua-ko-taki, the surface is covered with fine, red, volcanic sand and dust, which is kept in constant motion by the winds, and is barren of vegetation of any kind.

132 At the time of our visit, December, which is during their dry or summer season, extending from October to April, the periods of the
312 southeast trades, there were no running streams on the island, nor, with the exception of the valley at the base of Rana Kao, were there any evidences of the former existence of such visible. Fresh water away from the habitations was exceedingly scarce and difficult to obtain, although showers of rain at night were not infrequent.

312 The alleged springs or wells, including *Puna Pua*, the "Unfailing Spring," so highly spoken of by former visitors, were at long distances apart, were merely shallow excavations among the bowlders into which the surface water percolated, and were covered to protect them from the animals. The water contained in them was rarely of more than a few bucketsful in quantity, and with a single exception, at Camp Whitney, of bad quality. That contained in the lakes inside the two craters, the accumulations of the rainy seasons, and surface drainage also, was fully as bad, and impregnated both with vegetable and animal matter, the former from the dense growth on the surface, the latter from the herds of cattle which came to the lakes to drink.

271 It may be mentioned in this place that the natives, from long habit, no doubt, have become accustomed to drink but sparingly. We were surprised, during our expedition around the island, to notice how rarely they resorted to the canteen, with which all were provided, and they, no doubt, were equally amazed at our constant demand for water, made necessary to replace the loss from perspiration, induced by violent exercise and the sun's heat. They were always careful to locate our camp near, and anxious to keep us well supplied with, as good water as was to be had, and when we broke camp in the morning the "springs" in the vicinity were usually drained dry.

312 It was at first a mystery to us whence the animals obtained their supplies, but as to the cattle, they never wandered far away from the craters, in whose lakes they could, at all seasons, quench their thirst. In so far as the sheep were concerned, whose needs in this respect are

10: Cooke D-5 (1886) 1899
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not great, no doubt the night dews, which are quite heavy on Rapa Nui, and with which the grass is loaded in the mornings, amply supply all their requirements in this respect. 312

At the habitations, the rain falling on the roofs of the houses was collected in iron tanks, and the water thus obtained was unexceptionable. During the winter season, April to October, when the winds are variable, there is ample rainfall, and fresh water is abundant.

Having no knowledge of the potter's art, earthen vessels are unknown, [323] although red clay of fine quality is plentiful on the island. Neither 415 does the cocoanut palm, so indispensable to the natives throughout Polynesia, grow upon the island, at the present day at least. A variety 137 of gourd flourishes luxuriantly, however, and the fruit of this, properly seasoned, furnishes them with vessels for holding their water.

The flora of the island is a very meager one. Tradition has it that 137 it was barren until King Hoto Metua, the "Prolific Father," with his Queen and followers, landed and took possession, bringing with them seeds and fruits.

Except in the immediate vicinity of the houses occupied by Messrs. Salmon and Brander, the island may be said to be treeless. In the places mentioned a few fig, acacia, paper mulberry, and other trees grew to a fairly good height. In other parts of the island may be seen, in places in considerable numbers, a hard-wood tree, more properly bush or brush, called by the natives *toromiro*. These must have flourished fairly well at one time, but are now all, or nearly all, dead and decaying by reason of being stripped of their bark by the flocks of sheep which roam at will all over the island. None of the trees are, perhaps, over 10 feet in height, nor their trunks more than 2 or 3 inches in diameter. The wood is exceedingly hard and heavy, somewhat resembling our apple, and the natives used, and still use it, to this day in making their house Gods, their Penates. These are rudely carved out of the solid 532 wood, hideous imitations of the nude human form, male or female; 2 to 3 feet in length, with preposterous development of chest and preternatural collapse of abdomen, as though famine had brooded over the land and the patient had perished of inanition; with attenuated forms, long, slender arms and legs, narrow faces, a goatee, long, prominent ears, etc. In the eyes of these idols the iris is usually represented by a circular button of bone, generally cut from a human skull, while a fragment of obsidian, fixed in a round hole in the center of this, and which glistens in the light, makes a fair imitation of the pupil, both being deftly fitted in the wood of the ball. On the first occasion when the writer saw a skull from which several such buttons of bone had been removed for the purpose mentioned, he was impressed with the idea that the ancient Rapa Nuis, like the ancient Peruvians in the time of the Incas, were acquainted with the operation of trephining and performed it in a much neater manner. Subsequent investigation speedily undeceived him on that point.

10: Cooke D-5 (1886) 1899
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[137] There are a few stunted trees and bushes growing near the water's edge, inside the great crater of Rana Kao. This remarkable volcano is 133 1,327 feet high. The diameter of the crater at the top is 4,150 feet. At the water line inside it measures 2,085 feet across. The depth from the top to the lake is 600 feet, so that the surface of the latter is 727 feet above the sea level. The crater is nearly a perfect circle and unbroken at its upper edge, except at a point at its southern side, toward the ocean, where exists a large cleft or notch, through which, no doubt, the lava, when the volcano was active, found its way to the sea, and perhaps assisted in forming the small adjacent islands of Mutu Nui and Mutu Raukau. It was to this latter island that their swimming matches were annually held, in the effort to see who should be the first to reach it, climb to the precipitous sides, and bring back one of the sacred eggs of the sea bird, to which they attached such a superstitious value, and which conferred kingship for the year on the lucky captor for his prowess. This rock, covered with birdlime, looks at a little distance like a huge inverted stalactite projecting high in air from the depths of the sea. The labor and difficulty involved in mounting it, therefore, may be imagined.

133 The interior of the crater (Rana Kao) is distinctly conical in shape, resembling a vast amphitheater, and presents a magnificent view. 487 Trails lead to the bottom, in various directions, evidently the tracks worn by animals; but the descent, as well as the ascent, is most difficult, and but very few ever attempt the feat.

133 Grazing around the edge of the lake, as well as on the floor of vegetable matter floating on its surface, could be seen cattle which looked, 137 at that dizzy height, of about the size of sheep, and sheep which appeared like rabbits. The lake at the bottom has been sounded by Mr. Salmon to a depth of 300 feet, when his line parted, without touching bottom. The surface edge is covered, over almost its entire extent, 137 with a thick, dense, intertwined, vegetable growth, the accumulation 312 of many years, from which grow small trees and bushes of considerable size. At various places, and few in number, over this floating, elastic, vegetable floor, which rises and falls as the water in the lake increases or diminishes in quantity, according as it is the rainy or dry season, are openings of variable size and irregular circular shape, through which the water appears, rippled by the passing winds, and to which the animals resort to drink. Around these openings the vegetation is of a vivid green, evidencing present and vigorous growth, as well as gradual but steady encroachment on the small remaining free surface of the lake, so that in course of time it will no doubt become entirely covered. Other portions of the vegetable mass are of a deeper shade of green, while still other and older parts are of varying tints of brown. 312 Cattle and sheep may be seen browsing unconcernedly over various portions of the floating floor of vegetation, a curious and interesting spectacle, and instinctively, perhaps, avoiding the treacherous places

14: Routledge E-5 (1914-1915) 1917
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impossible for him to rejoin us. He went back later to England, and fell in the service of his country in September 1915. The *Mana* returned to Juan Fernandez and waited there till the fear of further cases developing on board had passed. The island is strikingly beautiful, with high mountains, deep gorges, and wonderful vegetation. It has a few score inhabitants under the charge of one old gentleman as magistrate and some four gendarmes. Here the *Dresden* sought refuge after the battle of the Falkland Islands, and when found by our navy claimed that she was interned. The chief celebrity connected with the place is of course the renowned Alexander Selkirk. His cave is shown and also his look-out point on the crest of the dividing ridge of the island.

From Juan Fernandez we sailed westward for three weeks, and at length in the grey dawn of March 29 Easter Island was sighted. It was thirteen months since we had left Southampton, of which we had been 147 days under way. As our goal at last hove in view a hush fell over the party, broken by the despairing voice of the ship's cook, "I don't know how I am expected to make a fire on that island; there is no wood." He spoke the truth. Easter Island has probably never had much more than brushwood and shrubs; but to-day it is used as a cattle ranch by a Chilean Company, and even that vegetation has disappeared.

The island is of recent volcanic formation, triangular in shape and curiously symmetrical. The highest ground is in the northern angle where an extinct volcanic mass rises to 1700 feet. Both the eastern and western angles are also formed by old volcanoes. At these high points erosion has caused imposing vertical cliffs on the seaward side; elsewhere the shoreline consists of low cliffs only, rising to not more than 50 to 100 feet above sea-level. The main portion of the island is composed of sheets of lava in process of disintegration, across which walking is almost impossible, and riding a very slow process. It is diversified at intervals by cones of volcanic ash some hundreds of feet in height, each with its own small crater. Grass covers the whole area, sprouting up on the lower ground between the masses of lava and covering the hills in such manner as to give them a down-like appearance. A few of the craters have lakes, but there is not one surface stream, and the water-supply is a great difficulty. There is no safe anchorage, and after the *Mana* had landed the shore party and stores she was sent back to Chile for mails and fresh provisions. She made altogether seven trips between Easter Island and the mainland, covering in these passages alone 14,800 nautical miles.

The shore party consisted at this time of our two selves, Lieut. Ritchie, the yacht's engineer, who was also photographer, the cook, and for a short while a Chilean boy from Juan Fernandez. Our experiences on the island were of a more exciting nature than had been anticipated, but as they have already been told they need only brief mention now.

The native population is of Polynesian race, and numbers at the present time about 250. They are confined to the district on the western

15:Routledge E-5 (1914-1915) 1919
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CHAPTER XV

NATIVE CULTURE IN PRE-CHRISTIAN TIMES

Sources of Information: History, Recent Remains, Living Memory—*Mode of Life:* Habitations, Food, Dress and Ornament—*Social Life:* Divisions, Wars, Marriages, Burial Customs, Social Functions.

114 It has been seen that any knowledge which exists on the island with regard to the origin of the monuments is of the most vague 127 description, and it is therefore necessary, in the attempt to solve the problem, to rely principally on indirect evidence. It becomes in particular essential to collect all possible information about the present people; not only for its intrinsic anthropological interest, but in order to find if any links connect them with the great builders, or if we must look for an earlier race.

As a first step in the search the scientist naturally turns to the most ancient accounts which he can find describing the island, its inhabitants, and remains; these are not yet two hundred years old. The first European to see it was a Dutch Admiral named Roggeveen, who came upon it on Easter Day, 1722, during his search for another and mysterious island known as Davis or David's Island.[1] He concluded that it was not the place for which he was looking, christened it Easter Island, and went further afield. His ship lay off the north side of the island for a week, but only on one day did landing take place, [137] and one or two of the party have left us short descriptions. 241 There were, they say, no big trees, but it had a rich soil and good climate; there were sugar-cane, bananas, potatoes and figs, and the natives brought them a number of fowls, estimated varyingly from sixty to five hundred.

[1] An island was reported in lat. 27° by an English buccaneer named Davis in 1687. It was, he said, five hundred miles from the coast of Chile, low and sandy, and some twelve leagues to the west of it was seen "a long tract of pretty high land." The description in no way applies to Easter, with which it has sometimes been identified. The probability seems to be that Davis was out of his reckoning, as was by no means unusual in the case of the early mariners, and it has been suggested that the island he saw was Crescent Island, the high ground in the distance being the Gambier group. The latitude of Easter Island is 27° 8′ S., that of Crescent Island is 23° 20′ S.